

REMARKS

Claims 7 to 24 are currently pending in the present application.

Reconsideration of the application is respectfully requested based on the following remarks.

With respect to paragraph 3 of the Office Action, claims 7 to 18 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 3,211,961 to Bayly et al. (the “Bayly” reference) in view of U.S. Patent No. 4,158,133 to Spaeth et al. (the “Spaeth” reference), and in further view of U.S. Patent No 5,493,442 to Buchholtz et al. (the “Buchholtz” reference).

To reject a claim under 35 U.S.C. § 103(a), the Office bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish *prima facie* obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Further, as clearly indicated by the Supreme Court in *KSR*, it is “important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed. *See KSR Int’l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007). In this regard, the Supreme Court further noted that “rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.*, at 1396. Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim features. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

Independent claim 7 is to an *infrared source* for a gas sensor, which includes the features of *a first layer having first transmission characteristics produced by absorption of infrared radiation and a second layer having second transmission characteristics produced by absorption of infrared radiation*, in which a combination of the first and the second

transmission characteristics effects a bandpass filter characteristics for an operating frequency range, and in which the first and second transmission characteristics are different transmission characteristics.

Independent claim 10 has features like those of claim 7.

The Office Action concedes that “Bayly fails to teach layers having transmission characteristics produced by absorption of infrared radiation”, but relies on the “Spaeth” reference (citing col. 2, lines 45-54; col. 4, lines 1-22; and col. 4, lines 34-40) as assertedly disclosing the aforementioned features. (See Office Action, page 3).

It is respectfully submitted that the cited sections do not support the Office’s assertions. First, the “Spaeth” reference concerns “[o]ptical filters [that] are directly mounted on the surface of photo-detectors.” (The “Spaeth” reference, Abstract, (emphasis added)). Thus, any discussion in the “Spaeth” reference regarding filters pertains to detectors and not an “infrared source.” It is respectfully submitted that a *detector* is a receiver and, thus, completely different from a *source*. Accordingly, the “Spaeth” reference does not disclose, nor even suggest, the feature of an infrared source for a gas sensor including *a first layer having first transmission characteristics produced by absorption of infrared radiation and a second layer having second transmission characteristics produced by absorption of infrared radiation*, as provided in the context of the claimed subject matter.

Accordingly, the “Bayly” reference, whether taken alone or in combination with the “Spaeth” reference, does not disclose the above-emphasized claim features. The “Buchholtz” reference does not cure -- and is not asserted to cure -- this critical deficiency.

The “Bayly” reference does not disclose the claim feature of an infrared source for a gas sensor having two different infrared radiation absorption characteristics. In this regard, the specification indicates as to Fig. 9 that there are a first layer 102 and a second layer 103 at infrared source 10. (See Specification, Fig. 9). In stark contrast, the filtration of the “Bayly” reference is not at the infrared source but at the detector 19. (See “Bayly”, Fig. 2). The secondary “Spaeth” reference does not cure, and is not asserted to cure, this critical deficiency. In fact, the “Spaeth” reference states that it provides “filters consisting of one or more layers which are directly applied to the detector surface.” (“Spaeth”, column 1, lines 51 to 53 (emphasis added)). Thus, filtration on an infrared source is not disclosed or suggested.

Accordingly, the combination of the “Bayly” and “Spaeth” references does not disclose the claim feature of an infrared source for a gas sensor having two different infrared

radiation absorption characteristics, as provided for in the context of the claimed subject matter. The “Buchholtz” reference does not cure, and is not asserted to cure, this critical deficiency.

Still further, the infrared source 10 of the “Bayly” reference states that it only includes a resistive spiral 122 and a quartz window 124. However, the “Bayly” reference does not disclose that the quartz window 124 has a transmission characteristic produced by absorption of infrared radiation. Instead, the “Bayly” reference apparently uses the quartz window 124 so that it does not absorb infrared radiation. The Office Action acknowledges that “Bayly fails to teach layers having transmission characteristics produced by absorption of infrared radiation”. (See Office Action, page 3).

However, to reject a claim as obvious under 35 U.S.C. § 103, the prior art must disclose or suggest each claim feature and it must also provide a motivation or suggestion for combining the features in the manner contemplated by the claim. (See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990)). Thus, the “problem confronted by the inventor must be considered in determining whether it would have been obvious to combine the references in order to solve the problem,” Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 679 (Fed. Cir. 1998).

In this regard, the Office Action has provided no proper motivation for combining the features of the “Bayly” reference with those of the “Spaeth” reference. Instead, it has only conclusorily asserted that “it would have been obvious to one of ordinary skill in the art at the time the invention was made that Bayly would use the absorption filter using a combination of filter materials in a stack of overlying layers that provides sufficient elimination of all wavelengths other than the desired bandpass wavelength.” (Office Action, page 3). The Office Action has not established any finding as to why one skilled in the relevant art would be motivated to combine the teachings of “Bayly” with the teachings of “Spaeth” and whether one of ordinary skill in the art could have pursued the recognized potential solution with a reasonable expectation of success.

A *prima facie* obviousness cannot be established based on a modification of a reference that destroys the intent, purpose, or function of the invention disclosed in the reference, since there is no suggestion or motivation to make the proposed modification. See In re Gordon, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). The “Spaeth” reference

deals with “application of absorption filters to *semiconductor surfaces*.” (The “Spaeth” reference, column 2, lines 47 to 48, emphasis added). In stark contrast, the “Bayly” reference is to an apparatus including filters which are completely unrelated to semiconductors. Accordingly, one skilled in the art would not be motivated to combine the references as suggested by the Office Action because semiconductor processes are not directly applicable to components completely unrelated to semiconductors.

Still further, the Office Action concedes that “Bayly fails to teach layers having transmission characteristics produced by absorption of infrared radiation” but relies on the “Spaeth” reference to cure this critical defect. In particular, the Office Action cites “Col. 2, line 45-54; Col. 4, line 1-22; and Col 4, line 34-40” as assertedly disclosing the aforementioned features. (See Office Action, page 3).

It is respectfully submitted that the cited sections do not support the Office’s assertions. The “Spaeth” reference concerns “[o]ptical filters [that] are directly mounted on the surface of photo-*detectors*.” (“Spaeth”, Abstract (emphasis added)). Thus, any discussion in the “Spaeth” reference regarding filters pertains to detectors and not an “infrared source.” It is respectfully submitted that a *detector* is a receiver and, thus, completely different from a *source*. Accordingly, the “Spaeth” reference does not disclose, nor even suggest, the feature of an *infrared source* for a gas sensor having a *first layer having first transmission characteristics produced by absorption of infrared radiation and a second layer having second transmission characteristics produced by absorption of infrared radiation*, as provided for in the context of the claimed subject matter.

Accordingly, the “Bayly” reference, whether taken alone or in combination with the “Spaeth” reference, does not disclose the above-emphasized claim features. The “Buchholtz” reference does not cure -- and is not asserted to cure -- this critical deficiency.

Still further, the Office Action concedes that the “combination of Bayly and Spaeth fails to teach where the first and second layers have different transmission characteristics.” As to the “Buchholtz” reference, it would not have been obvious to one of ordinary skill that the combination of Bayly and Spaeth would use two different layers having two different transmission characteristics in accordance with Buchholtz to provide a filter where the combined transmission characteristic has an absorption edge at a desired spectral position, thereby limiting the transmitted output of a light source to a specific wavelength range, which is primary objective for using filters in optical applications.

It is respectfully submitted that the cases of In re Fine, supra, and In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992), make plain that the Office Action's generalized assertions that it would have been obvious to modify or combine the references do not properly support a § 103 rejection. It is respectfully submitted that those cases make plain that the Office Action reflects a subjective "obvious to try" standard, and therefore does not reflect the proper evidence to support an obviousness rejection based on the references relied upon. In particular, the Court in the case of In re Fine stated that:

The PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. This it has not done. . . .

Instead, the Examiner relies on hindsight in reaching his obviousness determination. . . . One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

In re Fine, 5 U.S.P.Q.2d at 1598 to 1600 (citations omitted; italics in original; emphasis added). Likewise, the Court in the case of In re Jones stated that:

Before the PTO may combine the disclosures of two or more prior art references in order to establish *prima facie* obviousness, there must be some suggestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. . . .

Conspicuously missing from this record is any evidence, other than the PTO's speculation (if it be called evidence) that one of ordinary skill . . . would have been motivated to make the modifications . . . necessary to arrive at the claimed [invention].

In re Jones, 21 U.S.P.Q.2d at 1943, 1944 (citations omitted; italics in original).

It is believed and respectfully submitted that the present Office Action offers no evidence, but only conclusory hindsight, reconstruction and speculation, which these cases have indicated does not constitute evidence that will support a proper obviousness finding. Unsupported assertions are not evidence as to why a person having ordinary skill in the art would be motivated to modify or combine references to provide the claimed subject matter of

the claims to address the problems met thereby. Accordingly, the Office must provide proper evidence of a motivation for modifying or combining the references to provide the claimed subject matter.

The Federal Circuit in the case of In re Kotzab has also made plain that even if a claim concerns a “technologically simple concept” — which is not the case here — there still must be some finding as to the “specific understanding or principle within the knowledge of a skilled artisan” that would motivate a person having no knowledge of the claimed subject matter to “make the combination in the manner claimed,” stating that:

In this case, the Examiner and the Board fell into the hindsight trap. The idea of a single sensor controlling multiple valves, as opposed to multiple sensors controlling multiple valves, is a technologically simple concept. With this simple concept in mind, the Patent and Trademark Office found prior art statements that in the abstract appeared to suggest the claimed limitation. But, there was no finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of Kotzab's invention to make the combination in the manner claimed. In light of our holding of the absence of a motivation to combine the teachings in Evans, we conclude that the Board did not make out a proper prima facie case of obviousness in rejecting [the] claims . . . under 35 U.S.C. Section 103(a) over Evans.

In re Kotzab, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000) (emphasis added). Here again, there have been no such findings to establish that the features discussed above of the rejected claims are met by the reference relied upon. As referred to above, any review of the reference, whether taken alone or combined, makes plain that it simply does not describe the features discussed above of the rejected claims.

Furthermore, even if the references are combined as suggested by the Office Action, it is respectfully submitted that the combined “Bayly”, “Spaeth” and “Buchholz” references clearly teach away from the claimed subject matter. For example, claim 7 recites, in relevant part an *infrared source [including] a first layer having first transmission characteristics produced by absorption of infrared radiation and a second layer having second transmission characteristics produced by absorption of infrared radiation.* In this regard, the specification discloses that “the radiation emitted by the *infrared source* is emitted only in the range of the

operating frequency range, and thus the dissipating of energy in other regions of the gas sensor will also be reduced. It is therefore possible that the main heat development is only in the infrared source.” (Specification, page 2, lines 1 to 9, (emphasis added)). Accordingly, the features of the claimed subject matter, as clearly disclosed in the specification, include several benefits. In stark contrast, it is an object of the “Spaeth” reference “to provide filters for photo-detectors”. (The “Spaeth” reference, column 1, lines 45 to 50, (emphasis added)).

It is respectfully submitted that a photo-detector is not a source, but is instead a receiver. Hence, if the references were combined as suggested by the Office Action, they would not enable the features and the benefits as provided by the claimed subject matter and the specification. For this additional reason, the combination of the “Bayly,” “Spaeth,” and “Buchholtz” references does not disclose nor even suggest all the features of the claimed subject matter.

In view of the foregoing claims 7 and 10 and their respective dependent claims are allowable. It is therefore respectfully requested that the obviousness rejections be withdrawn.

CONCLUSION

Applicants respectfully submit that all pending claims of the present application are allowable. It is therefore respectfully requested that the rejections (and any objections) be withdrawn. Prompt reconsideration and allowance of the present application are therefore respectfully requested.

Respectfully submitted,

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